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10/809,227	03/25/2004	Hiroshi Kyusojin	450100-05089	6544

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EXAMINER	
HOLDER, ANNER N	
ART UNIT	**PAPER NUMBER**
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,227	KYUSOJIN, HIROSHI	
	Examiner	Art Unit	
	Anner Holder	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 7, 14, and 21 are rejected under 35 U.S.C. 101 because claimed invention is directed to non-statutory subject matter as follows. Claim 7, 14, and 21 defines a "program for executing an image decoding process in an image decoder" embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – MPEP 2106.01 I). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the computer program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory

classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to *include* the disclosed tangible computer readable media, while at the same time *excluding* the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Son et al. (Son) US 6,944,229 B2.

5. As to claim 1, Son teaches an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [abstract] the image decoder comprising: an electric power supplying means for supplying an electric power to respective units of the image decoder; [Fig. 4 (300); abstract] a decoding means for sequentially decoding each image data of the encoded motion picture data; [abstract; Fig. 4] a displaying means for sequentially displaying each image data of the decoded motion

picture data; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling means for controlling a decoding process in the decoding means on the basis of anticipated energy to be required for playing the motion picture data and remaining energy of the electric power supplying mean to dynamically control the playing quality of the motion picture data. [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display]

6. As to claim 2, Son teaches the image decoder according to claim 1, further comprising a load monitoring means for monitoring the computational load of the decoding means, wherein the load monitoring means adjusts the CPU frequency of the decoding means in accordance with the computational load corresponding to the playing quality. [Fig. 4 (200); Col. 4 Lines 16-19, 22-25, 31-46]

7. As to claim 3, Son teaches the playing quality indicates the number of frames to be played during a unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

8. As to claim 4, Son teaches an image decoding method of an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract] the image decoding method comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling

step for controlling a decoding process in the decoding step on the basis of anticipated energy to be required for playing the motion picture data and remaining energy of an electric power supplying means for supplying electric power to respective units of the image decoder to dynamically control the playing quality of the motion picture data. [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display]

9. As to claim 5, Son teaches the image decoder includes a load monitoring means for monitoring a computational load in the decoding step, the image decoding method further comprising a CPU frequency adjusting step for adjusting a CPU frequency in the decoding step in accordance with the computational load corresponding to the playing quality by the load monitoring means. [Fig. 4 (200); Col. 4 Lines 16-19, 22-25, 31-46]

10. As to claim 6 Son teaches the playing quality indicates the number of frames to be played during a unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

11. As to claim 7, Son teaches a program for executing an image decoding process in an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract] the program comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling step for controlling a decoding process in the decoding step on the

basis of anticipated energy to be required for playing the motion picture data and remaining energy of an electric power supplying means for supplying electric power to respective units of the image decoder to dynamically control the playing quality of the motion picture data. [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display]

12. As to claim 8, Son teaches an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract; Col. 2 Lines 6-10] the image decoder comprising: a decoding means for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying means for sequentially displaying each image data of the decoded motion picture data; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling means for controlling a decoding process in the decoding means to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display] wherein in case the current CPU frequency of the decoding means is higher than a first CPU frequency necessary for displaying a predetermined number of frames during a unit time, [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38] the controlling means dynamically controls the playing quality of the motion picture data correspondingly to the remainder of the CPU frequency. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

13. As to claim 9, Son teaches the current CPU frequency of the decoding means is higher than the first CPU frequency, the controlling means changes the CPU frequency of the decoding

means to a second CPU frequency that is lowest among changeable operating frequencies which are not lower than the first CPU frequency and dynamically controls the playing quality of the motion picture data in accordance with the difference between the first CPU frequency and the second CPU frequency. [Fig. 4 (200); Col. 4 Lines 16-19, 22-25, 31-46; Col. 4 Line 66 – Col. 5 Lines 12]

14. As to claim 10, Son teaches the playing quality indicates the number of frames to be played during a unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

15. As to claim 11, Son teaches an image decoding method of an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract; Col. 2 Lines 6-10] the image decoding method comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling step for controlling a decoding process in the decoding step to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display] wherein in case the current CPU frequency of the decoding step is higher than a first CPU frequency necessary for displaying a predetermined number of frames during a unit time, [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38] the controlling step dynamically controls the

playing quality of the motion picture data correspondingly to the remainder of the CPU frequency. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

16. As to claim 12, Son teaches the current CPU frequency of the decoding step is higher than the first CPU frequency, the controlling step changes the CPU frequency of the decoding step to a second CPU frequency that is lowest among changeable operating frequencies which are not lower than the first CPU frequency and dynamically controls the playing quality of the motion picture data in accordance with the difference between the first CPU frequency and the second CPU frequency. [Fig. 4 (200); Col. 4 Lines 16-19, 22-25, 31-46; Col. 4 Line 66 – Col. 5 Lines 12]

17. As to claim 13, Son teaches the playing quality indicates the number of frames to be played during a unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

18. As to claim 14, Son teaches A program for executing an image decoding process in an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract] the program comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling step for controlling a decoding process in the decoding step to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of

display] wherein in case the current CPU frequency of the decoding step is higher than a first CPU frequency necessary for displaying a predetermined number of frames during a unit time, [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38] the controlling step dynamically controls the playing quality of the motion picture data correspondingly to the remainder of the CPU frequency. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

19. As to claim 15, Son teaches an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; [Abstract; Col. 1 Lines 7-10] the image decoder comprising: a decoding means for sequentially decoding each image data of the encoded motion picture data; [Abstract; Fig. 4] a displaying means for sequentially displaying each image data of the decoded motion picture data; [Fig. 2; Col. 2 Lines 44-49; It would have been obvious to one of ordinary skill in the art to display decoded images when images are played] and a controlling means for controlling a decoding process in the decoding means to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display] wherein the controlling means dynamically controls the playing quality of the motion picture data on the basis of a unit time during which a predetermined number of frames is to be displayed, a time required for displaying the predetermined number of frames, or an anticipated time to be required for displaying the predetermined number of frames. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38; Abstract; Col. 3 Lines 6-10; Col. 5 Lines 10-12, 31-44]

20. As to claim 16, Son teaches the controlling means anticipates the time to be required for displaying the predetermined number of frames on the basis of the number of frames that can be

displayed during the unit time. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38; Abstract; Col. 3 Lines 6-10; Col. 5 Lines 10-12, 31-44]

21. As to claim 17, Son teaches the playing quality indicates the number of frames to be played during the unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38]

22. As to claim 18, Son teaches an image decoding method of an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; the image decoding method comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; and a controlling step for controlling a decoding process in the decoding step to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display] wherein the controlling step dynamically controls the playing quality of the motion picture data on the basis of a unit time during which a predetermined number of frames is to be displayed, a time required for displaying the predetermined number of frames, or an anticipated time to be required for displaying the predetermined number of frames. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38; Abstract; Col. 3 Lines 6-10; Col. 5 Lines 10-12, 31-44]

23. As to claim 19, Son teaches the controlling step anticipates the time to be required for displaying the predetermined number of frames on the basis of the number of frames that can be displayed during the unit time. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38; Abstract; Col. 3 Lines 6-10; Col. 5 Lines 10-12, 31-44]

24. As to claim 20, Son teaches the playing quality indicates the number of frames to be played during the unit time or the number of bits for one pixel of each image data. [Col. 1 Line 66 – Col. 2 Line 15; Col. 2 Line 29-38; Col. 4 Lines 55-58]

25. As to claim 21, Son teaches A program for executing an image decoding process in an image decoder for decoding encoded motion picture data composed of image data having a plurality of frames and displaying decoded motion picture data; the program comprising: a decoding step for sequentially decoding each image data of the encoded motion picture data; a displaying step for sequentially displaying each image data of the decoded motion picture data on a displaying means; and a controlling step for controlling a decoding process in the decoding step to dynamically control the playing quality of the motion picture data, [Fig. 4; Col. 1 Lines 50-53; Col. 3 Lines 6-35; Col. 2 Lines 20-65, adjusting the decoding speed changes the quality of display] wherein the controlling step dynamically controls the playing quality of the motion picture data on the basis of a unit time during which a predetermined number of frames is to be displayed, a time required for displaying the predetermined number of frames, or an anticipated time to be required for displaying the predetermined number of frames. [Col. 1 Line 66 – Col. 2 Line 18; Col. 2 Line 29-38; Abstract; Col. 3 Lines 6-10; Col. 5 Lines 10-12, 31-44]

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Love et al. (US 5,745,520) teaches dynamic adjustment of power based on frame quality; Larhiri et al., "Communication Architecture Based Power Management for Battery Efficient system Design, DAC 2002 teaches dynamically changing CPU voltage and frequency; AbouGhazaleh et al., "Toward the Placement of Power Management Points in Real Time Applications", Compliers and operating systems for low power, Pg. 37-52, 2003 teaches

dynamically changing CPU voltage and frequency; Watts et al., "Dynamic Management in Embedded Systems", IEE Electronics Systems and Software, Pg. 18-22, October/November 2003 teaches dynamically changing CPU voltage and frequency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anner Holder whose telephone number is 571-270-1549. The examiner can normally be reached on M-Th, M-F 8 am - 3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANH 09/06/07

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TC 2600